LYONIA

Occasional Papers of the Harold L. Lyon Arboretum

Volume 1, No. 1 March 29, 1974

Annotated Checklist of Hawaiian Mosses

W.J. HOE

Department of Botany
University of Hawaii

Forty years have passed since Bartram (1933) published the only comprehensive moss flora for the Hawaiian Islands. Since then, numerous articles which are relevant to our area have appeared listing additional taxa, new island records, and differing nomenclature. As a result, the *Manual of Hawaiian Mosses* has been rendered increasingly difficult for all but specialists to use.

The purpose of this checklist is to gather together information from publications of the last four decades and thus to present in a single treatment our knowledge of the Hawaiian moss flora. As a result, it is hoped the scattered literature will no longer pose such a serious problem for either the amateur or professional student of this very interesting component of the Hawaiian biota. In turn it is further hoped that many valuable collections which even today remain unidentified may be examined and a better understanding of the Hawaiian moss flora emerge.

Accepted in this list are 255 species, varieties, and forms distributed in 38 families and 123 genera. Their post-1933 synonymy, island-by-island distribution, and the references upon which these records are based have been indicated. In addition, there are taxa in *Ectropothecium, Entodon,* and *Fissidens* which appear to be new and will be described in forthcoming papers. For nomenclature, the *Index Muscorum* (van der Wijk, 1959-1969) has been followed. Author abbreviation citations follow Sayre, Bonner & Culberson (1964); journal abbreviations are generally those of the *Index Muscorum.* For synonymy, two general classes are recognized. For nomenclature synonyms, reasons for rejection of an epithet are usually given; taxonomic synonymy is without comment.

Table I summarizes the status of the Hawaiian moss flora. Table II summarizes the moss flora for each of the major islands.

I thank Drs. D. Herbst, Y. Sagawa, C.W. Smith, and W.L. Theobald for their assistance in the preparation of this manuscript. Useful bibliographic material was supplied by Mr. C.R. Long.

Library of Congress Catalog Card Number: 74-620038
Published by the Harold L. Lyon Arboretum, 3860 Manoa Road, Honolulu, Hawaii 96822.

TABLE I. Summary of the Hawaiian moss flora.

Taxa	Endemic		Non-endemic		Total
	Number	% of total Haw'n moss flora	Number	% of total Haw'n moss flora	
Families	0	—	38	100	38
Genera	2	1.6	121	98.4	123
Species Varieties Forms	130	51.0	125	49.0	255

TABLE II. Summary of the Hawaiian moss flora by island.

Taxa	Island	Endemic to H.I.*		Non-endemic to H.I.*		Total	
		Number	% of total Haw'n moss flora	Number	% of total Haw'n moss flora	Number	% of total Haw'n moss flora
Families	Kauai	0	—	26	68	26	68
	Oahu	0	—	28	74	28	74
	Molokai	0	—	25	66	25	66
	Lanai	0	—	17	45	17	45
	Maui	0	—	36	95	36	95
	Hawaii	0	—	33	87	33	87
Genera	Kauai	1	1	66	54	67	54
	Oahu	1	1	78	63	79	64
	Molokai	1	1	50	41	51	41
	Lanai	0	—	24	20	24	20
	Maui	1	1	102	83	103	84
	Hawaii	2	2	90	73	92	75
Species Varieties Forms	Kauai	58	23	59	23	117	46
	Oahu	76	30	72	28	148	58
	Molokai	46	18	35	14	81	32
	Lanai	17	6	16	6	33	13
	Maui	106	42	94	37	200	78
	Hawaii	86	34	87	34	173	68

*H.I. = Hawaiian Islands.

Abbreviations and Symbols

1. For distribution within the Hawaiian Islands:

H	=	Hawaii
K	=	Kauai
L	=	Lanai
Ma	=	Maui
Mo	=	Molokai
O	=	Oahu

Niihau and Kahoolawe are without published records; the Leeward Islands of the Hawaiian Archipelago have been excluded. Generalized, non-specific distributional comments (*e.g.*, "frequent on all the larger islands") are not included.

2. Endemic taxa: indicated by "*" (an asterisk), while non-endemic taxa are without symbols.
3. New island records being published here: "†" (a dagger) after the appropriate island abbreviation. Duplicates of all new island records are in my herbarium except where noted.

CHECKLIST

AMBLYSTEGIACEAE

Platyhypnidium Fleisch. 1923. Musci Fl. Buitenzorg 4: 1536.
muelleri (Jaeg.) Fleisch. 1923. Musci Fl. Buitenzorg 4: 1537.
Eurhynchium mulleri (Jaeg.) Bartr. 1933. Bishop Mus. Bull. 101: 214 *non E. m.* (Sande Lac.) Bartr. *err. cit.* Bartram, 1933.
K, O, Mo, Ma.—1, 12, 15.

Sciaromium (Mitt.) Mitt. 1869. Journ. Linn. Soc. Bot. 12: 571.
tricostatum (Sull.) Mitt. 1873. *in* Seem., Fl. Vit. 400.
Limbella tricostata (Sull.) C. Müll. 1896. Flora 82: 446 *comb. inval. non L. t.* (Sull.) Bartr. *err. cit.* Touw, 1971.
K, O, Mo, Ma, H.—1, 2, 3, 6, 18, 23, 34, 35.

The only extra-Hawaiian locality for this aquatic moss is Oregon (Lawton, 1971), where the population may now be extinct (Whittier, pers. comm.). In neither locality have sporophytes been found.

Originally described by Sullivant as a species of *Neckera,* the systematic position of this taxon remains uncertain. As a species of *Limbella,* it has been placed in the Hypnodendraceae (*e.g.,* Bartram, 1933); other authors have placed it in *Sciaromium* (Amblystegiaceae), while Touw (1971) says that it is close to *Pterobryella* (Pterobryaceae), especially *P. rigida* (Mitt.) Touw. For this list, Lawton's disposition has been followed.

ANDREAEACEAE

Andreaea Hedw. 1801. Spec. Musc. 47.
rupestris Hedw. 1801. Spec. Musc. 47.
Ma.—1.

BARTRAMIACEAE

Bartramia Hedw. 1801. Spec. Musc. 164.
*baldwinii C. Müll. 1896. Flora 82: 448. (as "baldwini")
Ma.—1, 34.
halleriana Hedw. 1801. Spec. Musc. 164 *non B. h.* (Hedw.) Hedw. *err. cit.* Bartram, 1933.
Ma.—1.

This species was gathered *(Hoe 1539.0)* from a roadside bank just outside of the Haleakala National Park boundary. This collection is apparently the only one from the Hawaiian Islands since Bartram's (1933) citations.

Breutelia (B.S.G.) Schimp. 1856. Coroll. 85.

arundinifolia (Duby) Fleisch. 1904. Musci Fl. Buitenzorg 2: 630.
K, O, Ma, H.—1, 3, 6, 11, 21.

*kilaueae (C. Müll.) Broth. 1904. Nat. Pfl. 1(3):655.
H.—1.

Philonotis Brid. 1827. Bryol. Univ. 2: 15.

falcata (Hook.) Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 62.
K, O, Mo, Ma.—1, 3, 18, 34, 35.

hastata (Duby) Wijk & Marg. 1959. Taxon 8: 74.
Philonotis laxissima Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 61 *nom. illeg. non P. l.* (C. Müll.) Bosch & Sande Lac. 1861. Bryol. Jav. 1: 154 *err. cit.* Bartram, 1933.
O, Ma, H.—1, 39.

*hawaica (C. Müll.) Broth. 1904. Nat. Pfl. 1(3): 645. (as "hawaiica" *in* Bartram, 1933)
K, O, Mo, L, Ma, H.—1, 6, 18, 34, 35.

turneriana (Schwaegr.) Mitt. var. turneriana. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 62.
K, O, Mo, L, Ma, H.—1, 3, 6, 34, 35.

*turneriana var. sullivantii (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 142.
O, Ma, H.—1.

Plagiopus Brid. 1826. Bryol. Univ. 1: 596.

oederi (Brid.) Limpr. 1895. Laubm. Deutschl. 2: 548.
Plagiopus longisetus (Brid.) Bartr. 1933. Bishop Mus. Bull. 101: 133 *comb. inval.*
Ma.—1.

BRACHYTHECIACEAE

Brachythecium B.S.G. 1853. Bryol. Eur. 6: 5.

*hawaiicum Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 105.
Ma, H.—2, 3, 8, 35.

lamprocarpum (C. Müll.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 321 (Adumb., 2: 387).
K, Ma, H.—1, 2, 34.

plumosum (Hedw.) B.S.G. 1853. Bryol. Eur. 6: 8.
Brachythecium oxyrrhynchum (Dozy & Molk.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 321 (Adumb. 2: 387).

Cirriphyllum oxyrrhynchum (Dozy & Molk.) Fleisch. 1923. Musci Fl. Buitenzorg 4: 1552.
K, O, Mo, Ma, H.—1, 6, 21, 34.

rutabulum (Hedw.) B.S.G. 1853. Bryol. Eur. 6: 15.
Ma.—1, 34, 35.

Eurhynchium B.S.G. 1854. Bryol. Eur. 5: 217.

vagans (Jaeg.) Bartr. 1933. Bishop Mus. Bull. 101: 213 *non E. v.* (Harv.) Bartr. *comb. illeg.* Bartram, 1933.
Rhynchostegium vagans Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 369 *err. cit.* Hoe, 1971.
K, O, Mo, Ma, H.—1, 5, 12, 34.

Palamocladium C. Müll. 1896. Flora 82: 465.

Pleuropus Griff. 1842. Calcutta Journ. Nat. Hist. 2: 473 *hom. illeg.*

*wilkesianum (Sull.) C. Müll. var wilkesianum. 1896. Flora 82: 466.
Pleuropus wilkesianus (Sull.) Broth. 1908. Nat. Pfl. 1(3): 1138.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 34, 35.

*wilkesianum var. altisetum C. Müll. 1896. Flora 82: 466.
Ma.—37.

*wilkesianum var. sciuroides (C. Müll.) Wijk & Marg. 1961. Taxon 10: 25.
Pleuropus wilkesianus var. *sciuroides* (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 209.
K, O, Mo, L, Ma, H.—1, 6, 34, 35.

Pseudoscleropodium (Limpr.) Fleisch. 1925. *in* Broth., Nat. Pfl. ed. 2, 11: 394.

purum (Hedw.) Fleisch. 1925. *in* Broth., Nat. Pfl. ed. 2, 11: 395.
H.—12.

Rhynchostegiella (B.S.G.) Limpr. 1896. Laubm. Deutschl. 3: 207.

*hawaica (C. Müll.) Broth. 1909. Nat. Pfl. 1(3): 1161. (as "hawaiica" in Bartram, 1933)
O.—1, 2, 35.

Rhynchostegium B.S.G. 1852. Bryol. Eur. 5: 197.

celebicum (Sande Lac.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 374.
Eurhynchium celebicum (Sande Lac.) Bartr. 1933. Bishop Mus. Bull. 101: 217.
K, O, Mo.—1, 12.

[gaudichaudii (Mont.) Jaeg.—taxon of uncertain status. See p. 35]

*selaginellifolium C. Müll. var. selaginellifolium. 1896. Flora 82: 475.
Eurhynchium selaginellifolium (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 215.
K, O, Mo, Ma, H.—1, 3, 6, 18, 34, 35.

*selaginellifolium var. recurvirameum (C. Müll.) Wijk & Marg. 1960. Taxon 9: 191.

Eurhynchium selaginellifolium var. *recurvirameum* (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 216.
K, O, H.—1.

BRYACEAE

Anomobryum Schimp. 1860. Syn. 382.

*angustirete Broth. 1927. Bishop Mus. Bull. 40: 14.
K†, Ma.—1.
New to Kauai. Dr. Derral Herbst *(Hoe Acc. No. 73-249)* collected this rare moss, previously known only from the type, along the North Fork of the Wailua River on 27 March 1973. Additional duplicates are at BISH, MICH.

Brachymenium Schwaegr. 1824. Spec. Musc. Suppl. 2(1): 131.

exile (Dozy & Molk.) Bosch & Sande Lac. 1860. Bryol. Jav. 1: 139
non B. e. Dozy & Molk. *err. cit.* Crum & Mueller-Dombois, 1968.
K, O, Mo†, Ma, H.—1, 8.
Dr. L. Earl Bishop *(1781)* from Waiahanau Gulch has provided the basis for the new Molokai record.

Bryum Hedw. 1801. Spec. Musc. 178.

argenteum Hedw. 1801. Spec. Musc. 181.
Bryum argenteum var. *lanatum* (P. Beauv.) Hampe. 1839. Linnaea 13: 44.
B. argenteum var. *lanatum* (P. Beauv.) B.S.G. 1839. Bryol. Eur. 4: 148.
K, O, Ma, H.—1, 3, 6, 18, 35, 39.
Ochi (1968) included the var. *lanatum* within the concept of var. *argenteum* "as there are many intergradations between it (var. *lanatum*) and var. *argenteum*." Most local collections would have been referable to the var. *lanatum*.

atrovirens Brid. 1803. Musc. Rec. 2(3): 48.
Bryum erythrocarpum Schwaegr. 1816. Spec. Musc. Suppl. 1(2): 100 *nom. illeg.*
O, Ma, H.—1, 35.

*baldwinii Broth. 1927. Bishop Mus. Bull. 40: 15. (as "baldwini")
Ma.—1.

billardieri Schwaegr. 1816. Spec. Musc. Suppl. 1(2): 115.
Bryum decaisnei Dozy & Molk. 1845. Musci Fr. Ined. Archip. Indici 19.
B. truncorum (Brid.) Brid. 1819. Mant. Musc. 119 of most authors *fid.* Ochi, 1970, 1971.
O, Ma, H.—1, 12, 31, 35.

caespiticium Hedw. 1801. Spec. Musc. 180. (as "caespiticum")
Ma, H.—1, 35.

capillare Hedw. 1801. Spec. Musc. 182.
Bryum vino-viride Bartr. 1933. Bishop Mus. Bull. 101: 116 *fid.* Ochi, 1969.
K, O, H.—1, 2, 30, 35.
giganteum (Schwaegr.) Arnott. 1827. Mem. Soc. Linn. Paris 5: 279.
Bryum giganteum Hook. 1826. *in* Schwaegr. Spec. Musc. Suppl. 2(2): 20 *nom. nud.*
Rhodobryum giganteum (Hook.) Schimp. 1876. Syn. ed. 2: 464 *fid.* Bartram, 1933.
R. giganteum (Schwaegr.) Par. 1898. Ind. Bryol. 1116.
K, O, Ma.—1, 3, 6, 21, 28, 35.
*hawaiicum, nom. nov.
Bryum crassicostatum Broth. 1927. Bishop Mus. Bull. 40: 15 *hom. illeg.*
Ma, H.—1, 3.
*mauiense Broth. 1927. Bishop Mus. Bull. 40: 14.
Ma.—1.
megalostegium Sull. 1859. Am. Expl. Exp. Wilkes Musci 9.
K, O, Ma, H.—1, 3, 11, 35.
nitens Hook. 1836. Icon. Pl. Rar. 1: 19.
O.—31.
Ochi (1970) recorded this taxon as new to the Hawaiian Islands on the basis of a single collection. A second gathering *(Hoe & Bishop 2062.0)* which he also verified, has since been made.

Leptobryum (B.S.G.) Wils. 1855. Bryol. Brit. 219.
pyriforme (Hedw.) Wils. 1855. Bryol. Brit. 219.
Ma†, H.—1, 2.
New to Maui, based upon *Forbes 2235.M* (March 1920), from Haleakala, S. slope at Auwahi. The material is at BISH.

Mielichhoferia Nees & Hornsch. 1831. Bryol. Germ. 2: 179.
*nealiae Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 102.
H.—2.
*pulvinata C. Müll. 1896. Flora 82: 439.
Ma, H.—1, 2, 4.

***Mniobryoides** Hörmann. 1969. Österr. Akad. Wiss. Math.-Naturwiss. Kl., Sitzungsber., Abt. 1, Biol. 177: 133-139.
*degenerae Hörmann. 1969. Österr. Akad. Wiss. Math.-Naturwiss. Kl., Sitzungsber., Abt. 1, Biol. 177: 134. (as "degeneriae")
H.—7, 20.
According to Crosby (1971) the name was invalidly published as no type was cited. However, as the author obviously intended to publish this combination (Degener *et. al.,* 1973), it is included in this list.

Orthodontium Schwaegr. 1827. Spec. Musc. Suppl. 2(2): 123.
pellucens (Hook.) B.S.G. 1844. Bryol. Eur. 4: 69.
K.—3, 6.

Pohlia Hedw. 1801. Spec. Musc. 171.
Webera Hedw. 1801. Spec. Musc. 168 *hom illeg.*
*baldwinii (Broth. *ex* Bartr.) Schultze-Mot. 1963. Willd. 3: 101.
Webera baldwinii Broth. 1904. Bull. Soc. Bot. Ital. 1904: 25 *nom. nud.*
Ma.—1, 34.
cruda (Hedw.) Lindb. 1879. Musci Scand. 18.
Webera cruda (Hedw.) Fuernr. 1829. Flora 12(Ergbl. 2): 35 *non W. c.* (Hedw.) Bruch. 1833. Musc. Germ. 425.
Ma, H.—1, 4.
leucostoma (Bosch & Sande Lac.) Fleisch. 1904. Musci Fl. Buitenzorg 2: 514.
Pohlia gracilescens (Bartr.) Bartr. 1952. Bishop Mus. Occ. Pap. 20(17): 299 *fid.* Ochi, 1968.
P. gracillima (Card.) Horik. & Ochi. 1953. *in* Ochi, Liberal Arts Journ. Tottori Univ.—Nat. Sci. 4: 13 *fid.* Ochi, 1968.
P. leucostomoides (Broth.) Bartr. 1952. Bishop Mus. Occ. Pap. 20(17): 299 *fid.* Ochi, 1968.
P. leucostomoides (Broth.) Ochi. 1956. Journ. Jap. Bot. 31: 359 *hom. illeg.*
Webera gracilescens Bartr. 1933. Bishop Mus. Bull. 101: 109 *fid.* Ochi, 1968; see also Ochi, 1959.
W. leucostomoides Broth. 1927. Bishop Mus. Bull. 40: 14 *fid.* Ochi, 1959.
K, O, Mo, Ma, H.—1, 4, 28, 29.
*mauiensis (Broth. *ex* Bartr.) Schultze-Mot. 1963. Willd. 3: 101.
Webera mauiensis Broth. 1904. Bull. Soc. Bot. Ital. 1904: 25 *nom. nud.*
Ma, H.—1, 35.

CALYMPERACEAE

Calymperes Sw. 1813. *in* Web. Tab. Exh. Calyptr. Operc. Gen. 2.
*hawaiense Bartr. 1933. Bishop Mus. Bull. 101: 70. (as "hawaiiense")
O.—1, 15.
tenerum C. Müll. 1872. Linnaea 37: 174 *non* 1871-1873. Linnaea, p. 144 *err. cit.* Bartram, 1933.
K, O, Mo†, Ma, H.—1, 18, 35, 39.
This SE Asia-Pacific moss is new to Molokai, based upon *Bishop 1829* from Waialua Gulch.
Most commonly a strand species, *Calymperes tenerum* has been reported on Oahu from a single collection made at 1500 feet in the windward Koolau Mountains. Subsequent localities which have been discovered on Oahu, all at elevations of less than 100 feet, are Foster Botanic Gardens *(Bishop*

1245, 1408), Punaluu Valley *(Hoe 2589.0, 2949.0),* Kahana Valley *(Hoe 2591.0, 2776.0),* and Maakua Gulch *(Bishop 1421).*

Calymperopsis (C. Müll.) Fleisch. 1913. Biblioth. Bot. 80: 5.

semilibera (Mitt.) Fleisch. 1913. Biblioth. Bot. 80: 5.

O, H.—15.

Syrrhopodon Schwaegr. 1824. Spec. Musc. Suppl. 2(1): 110.

[amoenus Broth.—taxon rejected from flora. See p. 36]

*hawaiicus C. Müll. 1896. Flora 82: 437.

K, O, Mo, Ma, H.—1, 3, 6, 35.

*kilaueae C. Müll. 1900. Abh. Naturw. Ver. Bremen 16(3): 500.

O, Mo†, Ma, H.—1, 15.

The Kenneth Nagata collection *(Hoe Acc. No. 73-127)* from Wailau Valley represents the first record of this taxon from Molokai.

[laevigatus Mitt.—taxon rejected from flora. See p. 36]

*oahuensis Broth. 1927. Bishop Mus. Bull. 40: 11.

O, Ma, H.—1, 6, 34, 35.

On Oahu reported only from the Manoa-Tantalus region, five other widely-separated localities may be added for this species: Koolau Mountains—Pupukea *(Hoe 436, 2793.0),* Waimano Trail *(Hoe 2339.0, 2817.0),* Kahana Valley *(Hoe 2585.0, 2695.0),* and Opaeula Trail *(Hoe 2895.0);* Waianae Mountains—Pahole Gulch *(Hoe 2985.0).* These additional collections indicate that *Syrrhopodon oahuensis* is widespread although localized on both slopes of the Koolau Mountains.

[Thyridium constrictum (Sull.) Mitt.—taxon of uncertain status. See p. 35]

CYRTOPODACEAE

Cyrtopus (Brid.) Hook. f. 1867. Handb. New Zealand Fl. 461.

setosus (Hedw.) Hook. f. 1867. Handb. New Zealand Fl. 461.

H.—1.

DICRANACEAE

Amphidium Schimp. 1856. Coroll. 39.

cyathicarpum (Mont.) Broth. 1902. Nat. Pfl. 1(3): 460.

Ma, H.—1, 2, 3, 4, 34.

Campylopodium (C. Müll.) Besch. 1873. Ann. Sc. Nat. Bot. ser. 5, 18: 189.

euphorocladum (C. Müll.) Besch. 1873. Ann. Sc. Nat. Bot. ser. 5, 18: 189.

K, O, Mo, Ma, H.—1, 3, 35, 39.

Campylopus Brid. 1819. Mant. Musc. 71.

*boswellii (C. Müll.) Par. var. boswellii. 1900. Ind. Bryol. Suppl. 89.
Campylopus boswelli Hampe *nom. nud.*
K, O†, Mo, Ma.—1, 35.
Hoe 2579.0 (duplicate verified by Dr. D.R. Smith at the University of Guam) from Kahana Valley, Koolau Mountains, is the basis of the new Oahu record.

*boswellii var. capitulatus Bartr. 1939. Bishop Mus. Occ. Pap. 15: 96.
Ma.—2.

densifolius Ångstr. var. densifolius. 1872. Öfv. K. Svensk. Vet. Ak. Förh. 29(4): 18.
K, O, Mo, Ma, H.—1, 3, 18, 21, 34, 35.

*densifolius var. hawaiico-flexuosus (C. Müll.) Mill. 1967. Journ. Hattori Bot. Lab. 30: 271.
Campylopus hawaiico-flexuosus (C. Müll.) C. Müll. 1900. Abh. Naturw. Ver. Bremen 16(3): 494.
C. hawaiico-flexuosus (C. Müll.) Par. 1900. Ind. Bryol. Suppl. 92.
C. purpureo-flavescens Hampe *p.p. sensu* Bartram, 1942.
K, O†, Mo, L, Ma, H.—1, 3, 18, 19, 35.
A large number of collections from the Waianae Mountains *(e.g., Hoe 21, 2317.0, 2318.0)* and the Koolau Mountains *(e.g., Hoe 1942.0, Kartawinata sn, Bishop 1123, Hoe & Bishop 2092.0)* verify that this common moss is on Oahu as Bartram (1933) implied.

*densifolius var. purpureo-flavescens (Hampe *ex* C. Müll.) Mill. 1967. Journ. Hattori Bot. Lab. 30: 271.
Campylopus purpureo-flavescens (C. Müll.) Par. 1900. Ind. Bryol. Suppl. 96 *non C. p-f.* Hampe *nom. nud. in* Bartram, 1933.
K, O, Mo, Ma, H.—1, 3, 34, 35.

exasperatus (Nees & Blume) Brid. 1826. Bryol. Univ. 1: 473.
Campylopus exasperatus Brid. *err. cit.* Bartram, 1933.
K, O, Ma, H.—1, 3, 8, 35.
This pioneer species is abundant on open lava flows in high rainfall areas of the island of Hawaii. From Kauai, Oahu, and Maui it is known only from single collections. Recently, the second locality for Oahu in Kahana Valley, Koolau Mountains *(Hoe 2580.0),* was discovered.

*fumarioli C. Müll. 1900. Abh. Naturw. Ver. Bremen 16(3): 496.
K, O†, Mo, L, Ma, H.—1, 3, 18, 19.
Hoe 2582.0 (duplicate verified by Dr. D.R. Smith at the University of Guam) from Kahana Valley, Koolau Mountains, is the basis of the new Oahu record.

introflexus (Hedw.) Brid. 1819. Mant. Musc. 72 *non* 1826. Bryol. Univ. 1: 472 *err. cit.* Bartram, 1933.
K, O, H.—1, 3, 11, 18, 35.

*skottsbergii Broth. 1927. Bishop Mus. Bull. 40: 6.
K, O, Ma, H.—1, 3, 18, 35.
*tubulosus Bartr. 1942. Bishop Mus. Occ. Pap. 16(14): 324.
K, Ma, H.—3, 35.
umbellatus (Arnott) Par. 1894. Ind. Bryol. 264.
Campylopus richardii Brid. 1819. Mant. Musc. 73 of some authors, see Miller, 1967.
C. umbellatus (Walker & Arnott) Bartr. 1933. Bishop Mus. Bull. 101: 44 *hom. illeg.*
C. umbellatus (Walter & Arnott) Bartram *sensu* Hörmann, 1967.
K, O, L, Ma, H.—1, 3, 18, 19, 21, 34, 35.

Dicranella (C. Müll.) Schimp. 1856. Coroll. 13.
*exilis Sull. 1874. Bull. Torr. Bot. Cl. 5: 10.
Ma.—25.
Bartram (1933), unable to locate the type collection for comparison, placed this species in his "excluded and uncertain species" list. The *Index Muscorum* accepts the name and Miller (1967) recently designated a neotype.
*hawaiica (C. Mull.) Broth. var. hawaiica. 1901. Nat. Pfl. 1(3): 310.
Microdus hawaiicus (C. Müll.) Par. 1900. Ind. Bryol. Suppl. 245.
K, Mo, Ma.—1, 3.
*hawaiica var. tomentella Bartr. 1933. Bishop Mus. Bull. 101: 28.
O, Ma.—1.
hochreutineri Card. 1912. Annuair. Cons. Jard. Bot. Geneve 15-16: 158.
Dicranella hochreuteri sensu Hörmann, 1964-1965.
K, O, L, Ma, H.—1, 3, 18, 19, 34, 35, 39.
*integrifolia Bartr. 1933. Bishop Mus. Bull. 101: 31.
Dicranella integrifolia (Broth.) Bartr. *err. cit.* Bartram, 1933.
O, Mo, Ma, H.—1, 6, 21, 35.
*rigidula Bartr. 1933. Bishop Mus. Bull. 101: 30.
K, O, H.—1, 4.

Dicranodontium B.S.G. 1847. Bryol. Eur. 1: 159.
denudatum (Brid.) Britt. 1913. *in* Williams. N. Am. Fl. 15: 151.
Ma.—15.
*falcatum Broth. var. falcatum. 1927. Bishop Mus. Bull. 40: 7.
K, O, Ma, H.—1, 3, 21, 23, 34, 35.
*falcatum var. atrovirens (Broth.) Bartr. 1933. Bishop Mus. Bull. 101: 48.
Ma, H.—1.

Dicranoloma (Ren.) Ren. 1901. Rev. Bryol. 28: 85.
*gracile Broth. *ex* Bartr. 1933. Bishop Mus. Bull. 101: 55.
Ma.—1, 34.
*wheeleri (C. Müll.) Par. 1904. Ind. Bryol. ed. 2, 2: 31.
Campylopus wheeleri Hampe *nom. nud.*
C. wheeleri (C. Müll.) Hampe *ex* Par. 1900. Ind. Bryol. Suppl. 99.
K, Ma, H.—1, 3, 35.

Dicranoweisia Lindb. *ex* Mild. 1869. Bryol. Siles. 48.
cirrata (Hedw.) Lindb. 1869. *in* Mild., Bryol. Siles. 49 *non* 1864. Öfv. Sv. Vet. Akad. Förh. 21: 230 *err. cit.* Bartram, 1933.
Without locality—1.

Dicranum Hedw. 1801. Spec. Musc. 126.
*speirophyllum Mont. var. speirophyllum. 1843. Ann. Sc. Nat. Bot. ser. 2, 20: 295 (as "spirophyllum") *non* 1846. Voy. Bonite Crypt. 275 *err. cit.* Bartram, 1933.
K, O†, Mo, Ma, H.—1, 3, 6, 8, 35.
Bartram's (1933) implied presence on Oahu may be confirmed by numerous collections from the Waianae Mountains *(Hoe 173, 416, 472, 476, 1975.0)* where it is common, and the Koolau Mountains *(Hoe 446, 452)*.
*speirophyllum var. breviflagellare (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 55.
O, Ma, H.—1, 3, 6.
*speirophyllum var. condensatum (Sull.) Wijk & Marg. 1960. Taxon 9: 50.
H.—36.
*speirophyllum var. elongatum (Sull.) Wijk & Marg. 1960. Taxon 9: 50.
Ma.—36.
Both the var. *condensatum* and var. *elongatum* of Sullivant have been accepted by the *Index Muscorum* but do not appear anywhere in the recent Hawaiian bryological literature. Judging from their original descriptions, these two varieties are apparently little more than ecomorphs of this very variable species and probably will be shown to be synonyms when further investigated.

Holomitrium Brid. 1826. Bryol. Univ. 1: 226.
*seticalycinum C. Müll. 1896. Flora 82: 445.
K, O, Mo, Ma, H.—1, 3, 6, 21, 34.
*squarrifolium Bartr. 1933. Bishop Mus. Bull. 101: 53.
Holomitrium ferriei Card. & Ther. 1908. Bull. Ac. Int. Geogr. Bot. 18: II *sensu* Crum & Mueller-Dombois, 1968.
O, H.—1, 6, 8.
In the Crum & Mueller-Dombois paper the two local taxa of *Holomitrium* were separated by, among other characters, the absence *(H. seticalycinum)* or the presence *(H. ferriei)* of flagellate branches. Dr. Crum (pers. comm.) later states: "Now that I see your specimens of *Holomitrium seticalycinum* with flagellate branchlets, and compared them with our few specimens of that species and Hawaiian specimens which I named *H. ferriei*, I consider them all the same. The first specimen I named *H. ferriei* (Mueller-Dombois *leg.)* is very reduced and therefore looks very different from well developed material. (I have no opinion on whether *H. ferriei*

is a synonym or not.)" While the status of *H. squarrifolium* in relation to *H. ferriei* is not at all clear, for the purposes of this list, *H. squarrifolium* Bartr. is retained.

Leucoloma Brid. 1827. Bryol. Univ. 2: 218.

molle (C. Müll.) Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 13.
O, Ma, H.—1, 18, 21, 35.

*scaberulum Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 96.
O.—2, 21.

Microdus Schimp. 1872. *in* Besch., Mem. Soc. Sc. Nat. Cherbourg 16: 161.

[filicaulis Broth.—taxon of uncertain status. See p. 35]

hillebrandii (C. Müll.) Par. 1897. Ind. Bryol. 804. (as "hildebrandti")
Dicranella hillebrandii (C. Müll.) Broth. 1901. Nat. Pfl. 1(3): 309 *non* 1904. Soc. Bot. Ital. Bull. p. 16 *err. cit.* Bartram, 1933. (as ("hillebrandi")
O, Mo.—1, 21, 35.

Rhabdoweisia B.S.G. 1846. Bryol. Eur. 1: 97.

crispata (With.) Lindb. 1871. Acta Soc. Sc. Fenn. 10: 22.
Rhabdoweisia denticulata B.S.G. 1846. Bryol. Eur. 1: 99 *non R. d.* (Brid.) B.S.G. *err. cit.* Bartram, 1952.
H.—4.

Trematodon Michx. 1803. Fl. Bor. Am. 2: 289.

latinervis C. Müll. 1896. Flora 82: 445.
K, O, Mo, Ma, H.—1, 6, 35.

[longicollis Michx.—taxon rejected from flora. See p. 36]

DITRICHACEAE

Ceratodon Brid. 1826. Bryol. Univ. 1: 480.

purpureus (Hedw.) Brid. forma purpureus. 1826. Bryol. Univ. 1: 480.
Ceratodon purpureus Brid. *err. cit.* Bartram, 1933.
K, Ma, H.—1, 3, 8, 34, 35.

purpureus forma xanthopus (Sull.) Britt. 1913. N. Am. Fl. 15: 60.
H.—4.
Recorded only once in the literature from the Hawaiian Islands, the Kohala Mountains *(Hoe 1885.0)* may be added as a second locality.

Distichium B.S.G. 1846. Bryol. Eur. 2: 153.

capillaceum (Hedw.) B.S.G. 1846. Bryol. Eur. 2: 156.
H.—2, 4.

Saelania Lindb. 1878. Utkast Nat. Grupp. Eur. Bladmoss. 35.

glaucescens (Hedw.) Broth. 1894. *in* Bomanss et Broth., Herb. Mus. Fenn. 2: 53 *non* 1901. Nat. Pfl. 1(3): 300 *err. cit.* Bartram, 1933.
Ma.—1, 34.

ENCALYPTACEAE

Encalypta Hedw. 1801. Spec. Musc. 60.
rhabdocarpa Schwaegr. 1811. Spec. Musc. Suppl. 1(1): 56. (as "rhabtocarpa")
H.—4.
sandwicensis Sull. 1859. U.S. Expl. Exp. Wilkes Musci 6.
H.—1, 2.
*scabrata Bartr. 1933. Bishop Mus. Bull. 101: 72.
Ma, H.—1, 3.

ENTODONTACEAE

Entodon C. Müll. 1845. Linnaea 18: 704.
solanderi (Ångstr.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 292 (Adumb. 2: 358).
Entodon hillebrandii C. Müll. 1896. Flora 82: 461. (as "hillebrandi")
K, O, Ma, H.—1, 4, 35, 39.
subcuspidatus (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 220.
K, Ma.—1, 35.

FABRONIACEAE

Fabronia Raddi. 1808. Atti Acc. Sc. Siena 9: 230.
*degeneri Bartr. 1933. Bishop Mus. Bull. 101: 197.
O, Mo, H.—1, 35.
nietneri C. Müll. 1869. Linnaea 36: 18.
O, Ma, H†.—12, 34.
Wirawan *sn (Hoe Acc. Nos. 71-480, 71-487)* from Puu Waawaa establish this taxon as present on the island of Hawaii.

FISSIDENTACEAE

Fissidens Hedw. 1801. Spec. Musc. 152.
*baldwinii Broth. 1927. Bishop Mus. Bull. 40: 4.
K, O, Mo, Ma, H†.—1, 18, 35.
A collection *(Hoe 2447.0)* from the Hilo Forest Reserve indicates that this taxon is present on the island of Hawaii.
*bishopii Hoe. 1972. Bryologist 75(1): 85.
K, O, Mo†, Ma, H.—13, 15.
An Onini Gulch collection *(Bishop 1803)* provides the basis for this new island record.

*crumii Hoe. 1972. Bryologist 75(1): 84.
O.—13.
When originally described, *F. crumii* was known only from the type locality. Subsequently, a number of sites, all on Oahu, have been discovered: Wahiawa Botanic Garden *(Bishop 1218),* Liliuokalani Gardens *(Bishop 1412),* Kahana Valley *(Hoe 2565.0, 2588.0, 2588.1),* vicinity of Ala Wai Canal *(Hoe & Bishop 2766.0),* Manoa Valley *(Hoe 2943.0).*
This species is apparently confined to disturbed soil and sandstone at low elevations. Although most collections have been made at localities below 200 feet, *Bishop 1218* was found at 1000 feet. Sporophytes have not yet been seen. Duplicates of *Hoe & Bishop 2766.0* are being distributed through H. Inoue: *Bryophyta Selecta Exsiccata.*
delicatulus Ångstr. 1872. Öfv. K. Svensk. Vet. Ak. Förh. 29(4): 20.
K, O, L, Ma, ?H.—1, 11, 35.
According to Smith (1967), this moss was previously reported from the island of Hawaii. I can find no records to confirm the statement.
*hawaiicus Bartr. 1933. Bishop Mus. Bull. 101: 15.
K, O, Mo, Ma, H.—1, 11, 35.
*kilaueae Hoe & Crum. 1971. Bryologist 74(4): 484.
K, O, H.—15, 17.
*lancifolius Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 94.
O, Mo, Ma.—2, 35.
*mauiensis C. Müll. 1896. Flora 82: 435.
K, O, Ma.—1, 35.
*oahuensis Bartr. 1939. Bishop Mus. Occ. Pap 15(8): 95.
Fissidens insularis Bartr. 1933. Bishop Mus. Bull. 101: 16 *hom. illeg.*
K, O, Mo, Ma, H.—1, 15, 35.
*pacificus Ångstr. 1872. Öfv. K. Vet. Ak. Förh. 29(4): 21.
K, O, Ma, H.—1, 6, 35.
[taxifolius Hedw.—taxon rejected from flora. See p. 35]

FUNARIACEAE

Funaria Hedw. 1801. Spec. Musc. 172.
hygrometrica Hedw. 1801. Spec. Musc. 172.
H.—1.
This world-wide weedy taxon either must be very rare or overlooked locally. Bartram (1933) has provided the only Hawaiian literature citations; I have collected it once *(Hoe 1563.0)* in the village of Volcano on the island of Hawaii.
*subintegra Broth. 1927. Bishop Mus. Bull 40: 13.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 34, 35.

GRIMMIACEAE

Grimmia Hedw. 1801. Spec. Musc. 75.
*haleakalae Reichardt. 1877. Sitzungsber. Ak. Wiss. Wein, Math. Nat. Cl. Abt. 1, 75: 567. (as "haliacalae")
Ma, H.—1, 2, 3, 4, 34.
laevigata (Brid.) Brid. 1826. Bryol. Univ. 1: 183.
H.—4.
*scabrifolia Broth. 1927. Bishop Mus. Bull. 40: 12.
Ma.—1.
torquata Hornsch. *ex* Grev. 1826. Scott. Crypt. Fl. 4: 199.
Ma.—3.
trichophylla Grev. 1824. Fl. Edinensis 235.
Ma, H.—1, 2, 3, 34.

Racomitrium Brid. 1819. Mant. Musc. 78. (Rhacomitrium Brid. of most authors)
crispulum (Hook. f. & Wils.) Hook. f. & Wils. 1854. Fl. Nov. Zel. 2: 75 *non* 1867. Fl. Tasm., p. 181 *err. cit.* Bartram, 1933.
K, Ma, H.—1, 3, 34.
*fasciculare var. erosum Broth. 1927. Bishop Mus. Bull. 40: 13.
Ma.—1.
This taxon, in the literature reported from a single collection, has recently been rediscovered *(Bishop 2068)* in upper Honokohau Valley, West Maui Mountains.
lanuginosum (Hedw.) Brid. var. lanuginosum. 1819. Mant. Musc. 79.
Ma.—12.
lanuginosum var. pruinosum Wils. 1854. *in* Hook. f., Fl. Nov. Zel. 2: 76.
Racomitrium lanuginosum var. *pruinosum* Hook. f. & Wils. *err. cit.* Bartram, 1933.
R. lanuginosum var. *sandvicense* Reichardt *fid.* Bartram, 1933.
K, O, Mo, Ma, H.—1, 3, 6, 8, 35.

Schistidium Brid. 1819. Mant. Musc. 20.
apocarpum (Hedw.) B.S.G. 1845. Bryol. Eur. 3: 99.
Grimmia apocarpa Hedw. 1801. Spec. Musc. 76.
Ma.—34.

HOOKERIACEAE

[Chaetomitrium wheeleri Hampe *ex* C. Müll.—taxon of uncertain status. See p. 35]

Daltonia Hook. & Tayl. 1818. Musc. Brit. 80.
*baldwinii Broth. 1927. Bishop Mus. Bull. 40: 24.
Ma, H.—1, 12.
contorta C. Müll. 1851. Syn. 2: 660.
K, O, Mo, Ma, H.—1, 12, 35, 39.

pseudostenophylla Bartr. 1933. Bishop Mus. Bull. 101: 189.
O, Ma, H.—1, 35.
*rufescens Broth. 1927. Bishop Mus. Bull. 40: 24.
O, Ma, H.—1, 35.

Distichophyllum Dozy & Molk. 1846. Musci Fr. Ined. Archip. Indici 4: 99.
*freycinetii (Schwaegr.) Mitt. var. freycinetii. 1873. *in* Seem., Fl. Vit. 392.
K, O, Mo, L, Ma, H.—1, 3, 6, 8, 18, 19, 34, 35.
*freycinetii var. crasse-turgescens (C. Müll.) Bartr. *ex* Hoe, comb. nov. Basionym: *Mniadelphus freycineti* (Schwaegr.) C. Müll. var. *crasse turgescens* C. Müll. 1896. Flora 82: 458.
Distichophyllum freycinetii var. *crasseturgescens* C. Müll. 1896. Flora 82: 458 *fid.* Bartram, 1933 *comb. illeg.*
No specific localities have been listed although Bartram (1933) says that the variety is found with the type.
This variety was originally described by C. Müller and placed in *Mniadelphus* C. Müll. It was transferred to *Distichophyllum* Dozy & Molk. by Bartram (1933) but incorrectly attributed to C. Müller without any indication that a transfer was being made.
*paradoxum (Mont.) Mitt. 1873. *in* Seem., Fl. Vit. 392.
K, O, Mo, L, Ma, H.—1, 3, 6, 19, 21, 35.

Hookeria Sm. 1808. Trans. Linn. Soc. London 9: 275.
acutifolia Hook. & Grev. 1825. Edinburgh Journ. Sc. 2: 225 *non H. a.* Hook. 1826. *in* Schwaegr., Spec. Musc. 2: 36 *err. cit.* Bartram, 1933.
O, Ma, H.—1, 6, 21, 35.

Hookeriopsis (Besch.) Jaeg. 1877. Ber. S. Gall. Naturw. Ges. 1875-1876: 358.
*purpurea (C. Müll.) Broth. var. purpurea. 1907. Nat. Pfl. 1(3): 942.
K, O, Ma, H.—1, 18, 35.
*purpurea var. acuminatula (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 195.
Ma.—1.
*purpurea var. ligulacea (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 195.
K, O, Mo, Ma, H.—1, 3, 21.

HYLOCOMIACEAE

Macrothamnium Fleisch. 1905. Hedwigia 44: 307.
macrocarpum (Reinw. & Hornsch.) Fleisch. 1905. Hedwigia 44: 308.
Ma.—1, 15.

HYPNACEAE

Ctenidium (Schimp.) Mitt. 1869. Journ. Linn. Soc. Bot. 12: 509.
*decurrens (Sull.) Broth. 1927. Bishop Mus. Bull. 40: 33.
K, O, Mo, Ma, H.—1, 3, 18, 21, 35.
*elegantulum Broth. 1927. Bishop Mus. Bull. 40: 34.
O, Ma, H.—1, 3, 34, 35.

Ectropothecium Mitt. 1868. Journ. Linn. Soc. Bot. 10: 180.
*arcuatum Mitt. 1873. *in* Seem., Fl. Vit. 400 *non E. a.* (Sull.) Mitt. *err. cit.* Bartram, 1933.
K, O, Ma, H.—1, 3, 21.
sandwichense (Hook. & Arnott) Mitt. 1873. *in* Seem., Fl. Vit. 400.
K, O, Mo†, Ma, H.—1, 34, 35.
Bishop 1801 from Waiahanau Gulch represents the first collection of this species from Molokai.
*viridifolium Bartr. 1933. Bishop Mus. Bull. 101: 249.
O, L, Ma.—1, 18, 19, 35.

Hypnum Hedw. 1801. Spec. Musc. 236.
plumaeforme Wils. 1848. London Journ. Bot. 7: 277.
Ma, H.—8.
At BISH are four full packets labelled "Kilauea, at 29 miles. Moss forming thick, bright-green cushion. March 10, 1955. Collected by Mrs. Wentworth Mist on Hawaii." This collection preceeds by ten years the first report by Crum and Mueller-Dombois.

Isopterygium Mitt. 1869. Journ. Linn. Soc. Bot. 12: 21, 497.
albescens (Hook.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 433 *non I. a.* (Schwaegr.) Jaeg. 1876-1877. (Adumb. 2: 499) *err. cit.* Bartram, 1933.
K, O, Mo, L, Ma, H.—1, 3, 18, 19, 21, 34, 35.
*vineale Bartr. 1933. Bishop Mus. Bull. 101: 250.
K, O, Mo, Ma, H.—1, 2, 12.

[Mittenothamnium trichopelmatum (C. Müll.) Card. (as Microthamnium in Bartram)—taxon of uncertain status. See p. 35]

Vesicularia (C. Müll.) C. Müll. 1896. Bot. Jahrb. 23: 330.
[graminicolor forma fluitans Hörmann.—taxon rejected from flora. See p. 36]
*perviridis (Ångstr.) C. Müll. 1896. Flora 82: 467.
Vesicularia graminicolor C. Müll. 1896. Flora 82: 468 *non V. g.* (Ångstr.) Broth. *comb. illeg.*
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 21, 34, 35.

HYPOPTERYGIACEAE

Hypopterygium Brid. 1827. Bryol. Univ. 2: 709.
*sandwicense Broth. 1927. Bishop Mus. Bull. 40: 25.
Ma, H.—1, 4.

A second record from the island of Hawaii *(Hoe 704.0)* for this very attractive species was collected from the smooth trunk of *Ilex anomala* H. & A. in the vicinity of the Kulani Honor Camp.

LEMBOPHYLLACEAE

Camptochaete Reichardt. 1870. Reise Öst. Freg. Novara Bot. 1(3): 190.

pulvinata (Hook. f. & Wils.) Jaeg. 1877. Ber. S. Gall. Naturw. Ges. 1875-1876: 309 (Adumb. 2: 213).
Ma.—1.

LEUCOBRYACEAE

Leucobryum Hampe. 1839. Linnaea 13: 42.

*gracile Sull. var. gracile. 1874. Bull. Torr. Bot. Cl. 5: 10.
K, O, Mo, L, Ma, H.—1, 3, 11, 18, 21, 34, 35.

*gracile var. hamatum Bartr. 1933. Bishop Mus. Bull. 101: 61.
K, O, Mo, Ma.—1.

*pachyphyllum C. Müll. 1896. Flora 82: 435.
K, O, Mo, L, Ma.—1, 3, 18, 19, 35.

[papuense Par.—taxon rejected from flora. See p. 35]

*seemannii Mitt. var. seemannii. 1873. *in* Seem., Fl. Vit. 387. (as "seemanni")
Leucobryum hawaiense (Reichardt) Bartr. 1933. Bishop Mus. Bull. 101: 61. (as "hawaiiense")
L. solfatarae var. *hawaiense* (Reichardt) Wijk & Marg. 1962. Taxon 11: 221 *fid.* Miller, 1967.
K, O, Mo, Ma, H.—1, 3, 34, 35.

*seemannii var. fumarioli (C. Müll.) Mill. 1967. Journ. Hattori Bot. Lab. 30: 272.
Leucobryum hawaiense var. *fumarioli* (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 62.
L. solfatarae var. *fumarioli* (C. Müll.) Wijk & Marg. 1962. Taxon 11: 221 *fid.* Miller, 1967.
H.—1, 8.

*seemannii var. solfatarae (C. Müll.) Mill. 1967. Journ. Hattori Bot. Lab. 30: 272.
Leucobryum hawaiense var. *solfatarae* (C. Müll.) Bartr. 1933. Bishop Mus. Bull. 101: 62.
L. solfatarae C. Müll. 1900. Abh. Naturw. Ver. Bremen 16(3): 500 *fid.* Miller, 1967.
K, Mo, Ma, H.—1, 3, 35.

Leucophanes Brid. 1826. Bryol. Univ. 1: 763.
glaucum (Schwaegr.) Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 25.
O.—15.
Octoblepharum Hedw. 1801. Spec. Musc. 50.
albidum Hedw. 1801. Spec. Musc. 50.
K, O, Ma, H.—1, 6, 12, 34, 35.

METEORIACEAE

Aerobryopsis Fleisch. 1905. Hedwigia 44: 304.
longissima (Dozy & Molk.) Fleisch. 1905. Hedwigia 44: 305.
Aerobryopsis longissima var. *dozyana* Fleisch. 1908. Musci Fl. Buitenzorg 3: 783 *nom. illeg. non A. l.* var. *d.* (C. Müll.) Fleisch. *err. cit.* Bartram, 1933.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 34, 35.
According to Dr. W.B. Schofield (pers. comm.), my collections *351.0* and *482.0*, duplicates of which were distributed with this name, have been annotated as *Aerobryidium filamentosum* (Hook.) Fleisch. by Dr. A. Noguchi.
In a subsequent letter from Dr. Noguchi on this problem, he stated "I have examined two collections of *Aerobryopsis longissima* determined by you. These collections *(351 & 482)* which I examined are few stems only, and sterile, but unusual in appearance. On the bases *(sic)* of leaf shape, rather thin cell-walls (those of *482* are thicker) the collections seem to me to be an *Aerobryidium,* probably *A. filamentosum* or an allied species. However, I have a question that *A. filamentosum,* a Himalayan element, occurs in Hawaii. I have seen few specimens of *Aerobryopsis longissima,* a common species in tropical Asia and the South Pacific islands, from the *(sic)* Hawaii. I think, the specimen (*no. 2397,* from Kohala Mountains) which you sent me is *Aerobryopsis longissima.*"
scariosa Bartr. 1939. Philipp. Journ. Sc. 68: 223.
K, O, Mo, Ma.—6, 12, 18, 25.
Barbella Fleisch. 1906. *in* Broth., Nat. Pfl. 1(3): 823.
*trichophora (Mont.) Fleisch. 1906. *in* Broth., Nat. Pfl. 1(3): 824.
K, O, Mo, Ma†, H.—1, 2, 3, 21, 35.
An implied presence (Bartram, 1933) on Maui may be confirmed by recent collections from Haleakala [*Hoe 563, 564, 1746.0, 1796.0, Smith sn (Hoe Acc. No. 71-238)*].
Floribundaria Fleisch. 1905. Hedwigia 44: 301.
*baldwinii Broth. 1927. Bishop Mus. Bull. 40: 22.
O.—1.
floribunda (Dozy & Molk.) Fleisch. 1905. Hedwigia 44: 302.
O, Ma, H.—1, 3, 35.
[Papillaria flaviuscula C. Müll.—taxon of uncertain status. See p. 35]

Pilotrichella (C. Müll.) Besch. 1872. Mem. Soc. Sc. Nat. Cherbourg 16: 222.
*mauiensis (Sull.) Jaeg. 1877. Ber. S. Gall. Naturw. Ges. 1875-1876: 255 (Adumb. 2: 159).
O, Ma, H.—1.

MNIACEAE

Mnium Hedw. 1801. Spec. Musc. 188.
marginatum (With.) P. Beauv. 1805. Prodr. 75.
Mnium serratum Schrad. *ex* Brid. 1803. Musc. Rec. 2(3): 84 *non* 1816. Schwaegr. Spec. Musc. Suppl. 1(2): 128 *err. cit.* Bartram, 1933.
Ma.—1.
Plagiomnium Kop. 1968. Ann. Bot. Fenn. 5: 145.
rostratum (Schrad.) Kop. 1968. Ann. Bot. Fenn. 5: 147.
Mnium rostratum Schrad. 1802. Bot. Zeit. Regensburg 1: 79 *non* 1816. Schwaegr. Spec. Musc. Suppl. 1(2): 136 *err. cit.* Bartram, 1933. [*M. r.* (Schrad.) Schrad. according to Koponen, 1968]
K, O, Mo, Ma, H.—1, 12, 35, 39.

NECKERACEAE

***Baldwiniella** Broth. *ex* Fleisch. 1906. Hedwigia 45: 71. (as "Baldwinella" in Bartram, 1933)
*kealeensis (Reichardt) Bartr. 1933. Bishop Mus. Bull. 101: 179.
K, O, Mo, Ma, H.—1, 3, 6, 21, 34, 35.
Homaliodendron Fleisch. 1906. Hedwigia 45: 74.
flabellatum (Sm.) Fleisch. 1906. Hedwigia 45: 74 *non H. f.* (Dickson, Smith) Fleisch., *H. f.* (Dickson) Fleisch. *err. cit.* Bartram 1933, 1942, *et H. f.* Fleisch. *err. cit.* Hörmann, 1967.
K, O, Mo, L, Ma, H.—1, 3, 6, 8, 11, 18, 19, 21, 35.
Bartram (1933) remarked that "the fruit is very rare. I have examined scores of colonies without ever finding a single capsule." Crosby (1965) provided the only literature citation for a fertile specimen, to which may be added the following recent collections: Oahu, Sacred Falls *(Hoe 270),* Castle Trail *Hoe 641),* Kahana Valley *(Hoe 2731.0);* Hawaii, Stainback Highway *(Hoe 1149.0),* Kona District *(Herbst sn* [*Hoe Acc. No.* 70-189]).
In my experience, capsules are most apt to be found on plants in large, over-mature colonies which appear to be dying. Under these conditions, sporophytes when present are likely to be on a high percentage of the plants.

Neckera Hedw. 1801. Spec. Musc. 200.
*hawaiico-pennata C. Müll. 1896. Flora 82: 462.
Ma.—1, 34.
Neckeropsis Reichardt. 1868. Verh. Zool. Bot. Ges. Wien 18: 192.
lepineana (Mont.) Fleisch. 1907. Musci Fl. Buitenzorg 3: 879.
K, O, Ma.—1, 37, 39.
This species is apparently rare in Hawaii as both Bartram (1933) and Touw (1962) cited only single collections from Maui and Kauai (in Bartram for Kauai as *N. obtusata*). Whittier (1968) also listed Oahu but did not cite any specimens. The following collections, all from the Waianae Mountains, will verify its presence on Oahu: upper Makaha Valley, *Nagata sn (Hoe Acc. No. 73-5), Hoe 2757.0,* and Kaluaa Gulch, *Obata sn (Hoe Acc. No. 73-717).* Duplicates of the Nagata collections are at L and MICH; material from *Hoe 2757.0* is being distributed to many herbaria.
Mr. Ken Nagata recently collected *(Hoe Acc. No. 73-967)* yet another puzzling *Neckeropsis* from Makaha Valley. A duplicate was sent to Dr. A. Touw who recently replied:
"The *Neckeropsis* specimen puzzles me too. The size and the branching do not make it very likely that this material belongs to *N. lepineana,* with which the plants agree in general leaf shape, whereas the length of the costa is very variable, and usually distinctly longer than in that species."
"At first view the material does not appear to represent any *Neckeropsis* I know. However, I strongly hesitate to call it a new species as the material is obviously juvenile (I have not been able to find a single gametoecium) and might be abnormal. The leaves are far less strongly differentiated into primary stem leaves and branch leaves, etc. than is usual. I would prefer to wait until more material—preferably bearing gametoecia—has become available."
"I have seen material of *N. lepineana* that was very small and had longer costae than usual, but this material is far more aberrant than that."
[obtusata (Mont.) Fleisch.—taxon rejected from flora. See p. 35]
Thamnobryum Nieuwl. 1917. Am. Midland Natural. 5: 50.
Thamnium B.S.G. 1852. Bryol. Eur. 5: 211 *hom. illeg.*
*speciosum (Broth.) Hoe, comb. nov.
Basionym: *Thamnium speciosum* Broth. 1927. Bishop Mus. Bull. 40: 23.
Ma, H.—1, 35.

ORTHOTRICHACEAE

Macromitrium Brid. 1819. Mant. Musc. 132.

[altum C. Müll. (as M. alatum C. Müll. in Bartram).—taxon of uncertain status. See p. 35]

*brevisetum Mitt. 1873. *in* Seem., Fl. Vit. 379.
K, O, Mo, Ma, H.—1, 6, 21, 34, 35.

*emersulum C. Müll. 1896. Flora 82: 451.
K, O, Mo, Ma, H.—1, 6, 11, 18, 34, 35.

incurvifolium (Hook. & Grev.) Schwaegr. 1827. Spec. Musc. Suppl. 2(3): 144.
Macromitrium cumingii C. Müll. 1896. Flora 82: 452 (as "cumingi") *fid.* Whittier, 1968.
K, Ma, H.—1, 18.

*intricatum C. Müll. 1896. Flora 82: 452.
O, Ma, H.—1, 2, 11, 34, 39.

piliferum Schwaegr. 1826. Spec. Musc. Suppl. 2(2): 66.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 34, 35.
Long considered endemic to the Hawaiian Islands, Whittier (1968) reported the existence of a single collection of this species from Tahiti.

reinwardtii Schwaegr. 1826. Spec. Musc. Suppl. 2(2): 69. (as "reinwardti")
Macromitrium owahiense C. Müll. 1864. Bot. Zeit. 22: 359 *fid.* Whittier, 1968.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 34, 35, 39.

Orthotrichum Hedw. 1801. Spec. Musc. 162.

*berggrenii Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 103.
O, H.—2, 18.

diaphanum Brid. 1801. Musc. Rec. 2(2): 29.
H.—12, 15.

*hawaiicum C. Müll. 1896. Flora 82: 451.
Ma, H.—1, 12.

*hillebrandii C. Müll. 1896. Flora 82: 450. (as "hillebrandi" in Bartram, 1933)
O, Ma, H.—1, 2, 35.

*verrucatum C. Müll. 1897. Bull. Herb. Boiss. 5: 850.
Without locality.—1.

Ulota Mohr. 1806. Ann. Bot. 2: 540.

*cervina Hoe & Crum. 1971. Bryologist 74(4): 487.
Ma.—17.
Dr. Herbst recently has made three additional collections *(Hoe Acc. No. 73-1029, 73-1035, 73-1046)* of this taxon from the vicinity of Wai Anapanapa, east Haleakala, Maui.

Zygodon Hook. & Tayl. 1818. Musc. Brit. 70.

reinwardtii (Hornsch.) A. Br. 1838. *in* B.S.G., Bryol. Eur. 3: 41.
Ma.—1, 34, 39.

tetragonostomus A. Br. 1838. *in* B.S.G., Bryol. Eur. 3: 41.
K, O, Ma, H.—1, 2, 15, 18, 34, 35.

[PHYLLOGONIACEAE]

[Orthorrhynchium cylindricum (Lindb.) Broth.—taxon rejected from flora. See p. 35]

[PILOTRICHACEAE]

[Pilotrichum rugifolium C. Müll.—taxon rejected from flora. See p. 36]

PLAGIOTHECIACEAE

Plagiothecium B.S.G. 1851. Bryol. Eur. 5: 179.
denticulatum (Hedw.) B.S.G. 1851. Bryol. Eur. 5: 190.
Without locality.—1.
*draytonii (Sull.) Bartr. 1933. Bishop Mus. Bull. 101: 223. (as "draytoni" in Bartram, 1933)
K, O, Mo, Ma, H.—1, 3, 34, 35.
*mauiense Broth. 1927. Bishop Mus. Bull. 40: 28.
Ma.—1.
Stereophyllum Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 117.
*oahuense Broth. 1927. Bishop Mus. Bull. 40: 28.
O.—1.

POLYTRICHACEAE

Pogonatum P. Beauv. 1804. Mag. Enc. 5: 329.
[cirratum (Sw.) Brid.—taxon rejected from flora. See p. 36]
tahitense Schimp. *ex* Besch. 1894. Ann. Sc. Nat. Bot. ser. 7, 20: 31.
Pogonatum baldwinii (C. Müll.) Par. 1898. Ind. Bryol. 977 (as "baldwini") *fid.* Whittier, 1968.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 35, 39.
Polytrichum Hedw. 1801. Spec. Musc. 88.
commune Hedw. 1801. Spec. Musc. 88.
H.—12.
juniperinum Hedw. 1801. Spec. Musc. 89.
H.—1, 2.
piliferum Hedw. 1801. Spec. Musc. 90.
Ma†, H.—2, 8.
Hoe 1820.0 from Kaupo Gap, Haleakala, represents the first known collection of this moss from Maui.

POTTIACEAE

Anoectangium Schwaegr. 1811. Spec. Musc. Suppl. 1(1): 33.
euchloron (Schwaegr.) Mitt. 1869. Journ. Linn. Soc. Bot. 12: 176.
K, O, Mo, L, Ma, H.—1, 6, 11, 34, 35.
*haleakalae (C. Müll.) Par. var. haleakalae. 1900. Ind. Bryol. Suppl. 12.
K, Mo, Ma, H.—1, 34, 35.
*haleakalae var. laxulum Bartr. 1933. Bishop Mus. Bull. 101: 77.
O, Ma, H.—1.
*harttiae Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 98.
H.—2.
*rubrigemmium Hoe & Crum. 1971. Bryologist 74(4): 485.
Ma.—17.
Recently, this rare moss, known only from the type locality in Kipahulu Valley, Maui, was recollected by Miss Betsy Harrison *(Hoe Acc. No. 73-685)* and Dr. Herbst *(Hoe Acc. No. 73-1024)* from the upper Hana Forest Reserve above Waihoi Valley, Maui.

Barbula Hedw. 1801. Spec. Musc. 115.
vinealis var. flaccida B.S.G. 1842. Bryol. Eur. 2: 68.
Barbula vinealis var. *cylindrica* (Tayl.) Boul. 1884. Musc. France 4: 30 *nom. illeg.*
O, Ma.—1, 3, 34, 35.
This taxon was reported by Smith (1967) as *B. v.* ssp. *cylindrica* (Tayl.) Podp.

Bryoerythrophyllum Chen. 1941. Hedwigia 80: 4.
recurvirostre (Hedw.) Chen. 1941. Hedwigia 80: 255.
Didymodom recurvirostris (Hedw.) Jenn. 1913. Man. Moss. W. Pennsylv. 96 *non D. r.* (Dicks.) Jenn. *err. cit.* Bartram, 1933.
Ma.—1, 3.

Desmatodon Brid. 1819. Mant. Musc. 86.
convolutus (Brid.) Grout. 1939. Moss Fl. N. Am. 1: 224.
H.—4.

Hymenostylium Brid. 1827. Bryol. Univ. 2: 81.
*firmum (C. Müll.) Broth. *ex* Bartr. 1933. Bishop Mus. Bull. 101: 80.
Ma.—1.

Hyophila Brid. 1827. Bryol. Univ. 1: 760.
involuta (Hook.) Jaeg. 1873. Ber. S. Gall. Naturw. Ges. 1871-1872: 354 (Adumb. 1: 202).
Hyophila dozy-molkenboeri Fleisch. 1904. Musci Fl. Buitenzorg 1: 328 *non* 1900-1902. Laubm. Java 1: 328 *err. cit.* Bartram, 1933.
K, O, Mo†, Ma, H.—1, 6, 11.
This moss has been collected recently *(Bishop 1799)* for the first time on Molokai in Waiahanau Gulch.

Leptodontium (C. Müll.) Lindb. 1864. Öfv. K. Vet. Ak. Förh. 21: 227.
flexifolium (With.) Hampe. 1864. *in* Lindb., Öfv. K. Vet. Ak. Förh. 21: 227.
Leptodontium brevicaule Bartr. 1933. Bishop Mus. Bull. 101: 86 *fid.* Zander, 1972.
H.—1, 2, 41.

Molendoa Lindb. 1878. Utkast Nat. Grupp. Eur. Bladmoss. 29.
*crassinervis Broth. 1927. Bishop Mus. Bull. 40: 11.
Gymnostomum sp.
Merceyopsis crassinervis (Broth.) Bartr. 1939. Bishop Mus. Occ. Pap. 15(8): 98.
K†, O, Ma, H.—1, 2, 26, 35.

A recent Herbst collection *(Hoe Acc. No. 73-84)* from the NE face of Haupu represents the first record of this taxon from Kauai.

Noguchi (1956) placed this taxon in the genus *Gymnostomum* (as *Gymnostomum* sp.), a lead followed by *Index Muscorum.* I corresponded with Dr. Noguchi on this, and upon his examination of my collection *66070943,* his reply was as follows:

"Many thanks for the specimen named *Molendoa crassinervis* Broth. from Mauna Kea. This has triangular stems lacking central strands. In cross-section, the leaf-costa shows stereid cells on each side of a band of guide cells. The androecia are lateral on stem, but I could not find any archegonia as you say."

"The presence of two stereids of costa is of the genus *Molendoa,* and the triangular stem lacking central strand is of *Anoectangium* or of *Gymnostomum.* In having both stereids of costa, the above specimen from Mauna Kea is similar to *Molendoa* and *Gymnostomum,* and is distinguished from *Anoectangium* which bears a single stereid band on dorsal side. As you know, the stand *(sic)* of sporophyte customarily has been regarded as helpful character to classify the allied genera, *Anoectangium, Molendoa, Gymnostomum,* etc. which are very near with each other (I think). This seems to be a good character. Thus, for the present it may be better to consider *Molendoa crassinervis* as a *Molendoa* rather than a *Gymnostomum,* when we evaluate *Molendoa, Anoectangium,* and *Gymnostomum* as separated genera."

Pseudosymblepharis Broth. 1924. Nat. Pfl. ed. 2, 10: 261.
*mauiensis (C. Müll.) Broth. 1927. Bishop Mus. Bull. 40: 12.
K, O, Ma, H.—1, 11, 12, 35.

Scopelophila (Mitt.) Lindb. 1872. Act. Soc. Sc. Fenn. 10: 269.
*infericola Hoe. 1973. Bryologist 76(1): 192.
H.—14.

Streptopogon Wils. 1851. *in* Mitt., Kew Journ. Bot. 3: 51.
erythrodontus (Tayl.) Wils. 1851. *in* Mitt., Kew Journ. Bot. 3: 51 *non* London Journ. Bot. *err. cit.* Bartram, 1933.
Ma.—1.

Tortella (Lindb.) Limpr. 1888. Laubm. Deutschl. 1: 520, 599.
humilis (Hedw.) Jenn. 1913. Man. Moss. W. Pennsylv. 96: 13.
Tortella caespitosa (Schwaegr.) Limpr. 1888. Laubm. Deutschl. 1: 600.
K†, O, L, Ma, H.—1, 18, 19, 35.
My collections *(Hoe 602.0, 607.0)* from the Na Pali coast establish the presence of this species on Kauai.

Tortula Hedw. 1801. Spec. Musc. 122.
?fragilis Tayl. 1847. London Journ. Bot. 6: 333.
Tortula alpina var. *inermis* (Milde) De Not. 1869. Atti Univ. Genova 1: 544.
Ma, H.—2, 4, 35.
See Steere. 1940. Bryologist 43(1): 15.
princeps De Not. 1838. Mem. R. Acc. Sc. Torino 40: 288 *non* 1838. Syll. Musc. Ital., p. 170 *err. cit.* Bartram, 1933.
Ma, H.—1, 35.
rhizophylla (Sak.) Iwats. & Saito. 1972. Misc. Bryol. Lich. 6(4): 59.
Tortula vectensis Warb. & Crundw. 1965. Trans. Brit. Bryol. Soc. 4(5): 763 *fid.* Iwatsuki & Saito, 1972.
O.—14, 22.
Recently reported as new to the Hawaiian Islands (Hoe 1973a), two further localities on Oahu have been discovered: Manoa Campus, University of Hawaii *(Hoe & Bishop 2765.0)* and Oahu Cemetery *(Hoe 2773.0)*. Its presence in three widely separated areas suggests that it may be widespread, at least on Oahu.

Trichostomum Bruch. 1829. Flora 2: 295.
*bartramii Mill. 1967. Journ. Hattori Bot. Lab. 30: 272.
Trichostomum mauiense Broth. 1927. Bishop Mus. Bull. 40: 12 *nom. illeg.*
K, O, Mo, Ma, H.—1, 6, 11, 34, 35.
oblongifolium Bartr. 1933. Bishop Mus. Bull. 101: 83.
K, O, Mo, Ma, H.—1, 11, 14, 35.

Weisia Hedw. 1801. Spec. Musc. 64. (as "Weissia")
controversa Hedw. 1801. Spec. Musc. 67.
Weisia viridula Hedw. 1801. Spec. Musc. 68.
W. viridula Hedw. *ex* Brid.
K, O, H.—1, 35, 39.
*ovalis (Williams) Bartr. 1933. Bishop Mus. Bull. 101: 79.
K, O, Mo, L, Ma, H.—1, 6, 11, 19, 34, 35.

PTEROBRYACEAE

Garovaglia Endl. 1836. Gen. Pl. 57. (as "Carovaglia")
*haleakalae Broth. 1927. Bishop Mus. Bull. 40: 20. (as "haleakala" in Bartram, 1933)
Ma.—1.
Trachyloma Brid. 1827. Bryol. Univ. 2: 277.
indicum Mitt. 1859. Journ. Linn. Soc. Bot. Suppl. 1: 91.
Trachyloma tahitense Besch. 1898. Bull. Soc. Bot. France 45: 118 *fid.* Whittier, 1968.
Ma.—1, 39.

PTYCHOMITRIACEAE

Ptychomitrium Fuernr. 1829. Flora 12 Erg. 2: 19. (as "Pthychomitrium")
*mauiense Broth. 1927. Bishop Mus. Bull. 40: 18.
Ma, H.—1, 2, 4, 34.

[PTYCHOMNIACEAE]

[Ptychomnion aciculare (Brid.) Mitt.—taxon rejected from flora. See p. 36]

RACOPILACEAE

Racopilum P. Beauv. 1805. Prodr. 36. ("Rhacopilum" of most authors)
cuspidigerum (Schwaegr.) Ångstr. 1872. Öfv. K. Vet. Ak. Förh. 29(4): 10.
Racopilum cuspidigerum (Schwaegr.) Mitt. 1873. *in* Seem., Fl. Vit. 491 *err. cit.* Bartram, 1933.
Rhacomitrium cuspidigerum sensu Crosby, 1965.
K, O, Mo, L, Ma, H.—1, 3, 5, 6, 11, 18, 19, 21, 34, 35.

RHIZOGONIACEAE

Rhizogonium Brid. 1827. Bryol. Univ. 2: 644.
*pungens Sull. 1854. Proc. Am. Ac. Arts Sc. 3: 81.
K, O, Mo, L, Ma, H.—1, 3, 6, 18, 19, 21, 35.
spiniforme (Hedw.) Bruch. 1846. *in* Krauss, Flora 29: 134 *non R. s.* Bruch *err. cit.* Hörmann, 1967.
K, O, Mo, L, Ma, H.—1, 3, 6, 11, 18, 19, 21, 34, 35, 39.

SEMATOPHYLLACEAE

Acroporium Mitt. 1868. Journ. Linn. Soc. Bot. 10: 182.

*fusco-flavum (Par.) Broth. var. fusco-flavum. 1925. Nat. Pfl. ed. 2, 11: 436 *non A. f-f.* (C. Müll.) Broth. *err. cit.* Bartram, 1933.

?*Acroporium sigmatodontium* (C. Müll.) Fleisch. 1923. Musci Fl. Buitenzorg 4: 1281 *sensu* Whittier, 1968.

K, O, Mo, L, Ma, H.—1, 3, 6, 8, 18, 19, 21, 34, 35.

Bartram (1933) discussed the similarity of *A. fusco-flavum* and *A. sigmatodontium* and kept the two taxa separate. Whittier (1968) credited the latter as present in Hawaii, but did not list the Hawaiian species in synonomy. If the two taxa are united, the C. Müller name would have priority.

*fusco-flavum var. baldwinii (Par.) Bartr. 1933. Bishop Mus. Bull. 101: 235 *non A. f-f.* var. *b.* (C. Müll.) Bartr. *comb. illeg.* Bartram, 1933.

Ma.—1.

Aptychella (Broth.) Herz. 1916. Biblioth. Bot. 87: 157. (as "Aptchella" in Bartram, 1933)

robusta (Broth.) Fleisch. 1923. Musci Fl. Buitenzorg 4: 1671.

K, Ma.—1, 15.

Brotherella Loesk. *ex* Fleisch. 1914. Nov. Guinea 12(2): 119.

*opaeodon (Sull.) Broth. 1925. Nat. Pfl. ed. 2, 11: 425.

K, O, Mo†, Ma, H.—1, 3, 35.

Two recent collections (East Molokai: ridge between Pelekunu Valley and Waikolu Valley, *Bishop 1806;* between Forestry Road and Puu Pepeopae, *Bishop 1822*) are the first records of this very attractive species from Molokai.

[subarcuata (C. Müll.) Broth.—taxon of uncertain status. See p. 35]

Glossadelphus Fleisch. 1923. Musci Fl. Buitenzorg 4: 1351.

*abortivapicus Hoe. 1973. Bryologist 76(2): 310.

O.—16.

*acutifolius Bartr. 1933. Bishop Mus. Bull. 101: 245.

Ma.—1.

*baldwinii Broth. 1927. Bishop Mus. Bull. 40: 31.

K, O, Mo, Ma, H.—1, 12, 35.

*chrysobasilaris Broth. 1927. Bishop Mus. Bull. 40: 31.

Ma.—1, 15.

*irroratus Bartr. 1933. Bishop Mus. Bull. 101: 240.

Ma.—1.

*limnobioides Broth. 1927. Bishop Mus. Bull. 40: 32.

O, Ma, H.—1, 12, 15.

*mauiensis Broth. 1927. Bishop Mus. Bull. 40: 31.

Ma.—1.

zollingeri (C. Müll.) Fleisch. var. filicaulis (Fleisch.) Fleisch. 1923. Musci Fl. Buitenzorg 4: 1356.

K, O, Mo, Ma, H.—1, 12, 15, 34, 35.

As *Ectropothecium zollingeri* (C. Müll.) Jaeg., this taxon has been credited to the Hawaiian bryoflora by some authors.

Hageniella Broth. 1910. Öfv. Finsk. Vet. Soc. Förh. 52 Afd. A(7): 4.
*pacifica Broth. 1927. Bishop Mus. Bull. 40: 29.
K, Ma, H.—1, 15.

Heterophyllium (Schimp.) Kindb. 1923. *in* Fleisch., Musci Fl. Buitenzorg 4: 1173.
*subauriculatum (C. Müll.) Broth. 1933. *in* Bartr., Bishop Mus. Bull. 101: 229 *non H. s.* (Hampe) Broth. *nom. nud.*
Ma, H.—1, 35.

Rhaphidostichum Fleisch. 1923. Musci Fl. Buitenzorg 4: 1307.
*pustulatum Hoe. 1973. Bryologist 76(2): 313.
O.—16.

Sematophyllum Mitt. 1864. Journ. Linn. Soc. Bot. 8: 5.
caespitosum (Hedw.) Mitt. 1869. Journ. Linn. Soc. Bot. 12: 479.
H†.—this report.
New to the Hawaiian Islands, *Sematophyllum caespitosum* has been collected at low elevations in Hilo and its environs. Specimens examined. South Hilo District: Waiakea F.R., Stainback Highway 1 mi. above Highway 11, on rocks, 400-ft., *Mukai sn (Hoe Acc. No. 71-215);* Hamakua Coast: Honomu, on dead log, 100-200-ft., *Mukai sn (Hoe Acc. No. 71-223);* Hilo: Waiakea Uka, on tree, 600-ft., *Mukai sn (Hoe Acc. No. 71-227);* Hilo: Nohea Street near golf course, on *Cibotium,* 260-ft., *Yoshida sn (Hoe Acc. No. 71-640),* on fruit tree, 260-ft., *Yoshida sn (Hoe Acc. No. 71-642);* Olaa F.R.: Stainback Highway, 1000-ft., *Nagata sn (Hoe Acc. No. 73-17).* A duplicate of the Nagata collection is at MICH and was determined by Dr. Howard Crum.
hawaiiense (Broth.) Broth. 1925. Nat. Pfl. ed. 2, 11: 431 *non* 1927. Bishop Mus. Bull. 40: 30 *err. cit.* Bartram, 1933. (as "hawaiicum" in Schultze-Motel, 1963)
K, O, Ma, H.—1, 11, 34, 35.

Taxithelium Spruce *ex* Mitt. 1869. Journ. Linn. Soc. Bot. 12: 21, 496.
mundulum (Sull.) Bartr. 1933. Bishop Mus. Bull. 101: 238.
Taxithelium undulatum (Sull.) Bartr. *sensu* Bartram, 1942.
K, O, Mo, L, Ma†, H.—1, 3, 11, 18, 19, 35, 39.
An implied presence on Maui (Bartram, 1933) may be confirmed by two recent West Maui Mountains collections *(Hoe 537.0, 551.0).*

Trichosteleum Mitt. 1868. Journ. Linn. Soc. Bot. 10: 181.
hamatum (Dozy & Molk.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 420 (Adumb. 2: 486).
K, O, Mo, L, Ma, H.—1, 3, 18, 19, 21, 35.

SPHAGNACEAE

Sphagnum L. 1753. Spec. Plant. 1106.
compactum Lam. & DC. 1805. Fl. Franc., ed. 2, 2: 443.
Sphagnum wheeleri C. Mull. 1887. Flora 70: 416.
Ma.—1, 9.
palustre L. 1753. Spec. Plant., ed. 2: 1106.
O, H.—1, 3, 9, 12, 34.

SPLACHNACEAE

Splachnobryum C. Müll. 1869. Verh. Zool. Bot. Ges. Wien 19: 503.
obtusum (Brid.) C. Müll. 1869. Verh. Zool. Bot. Ges. Wien 19: 504.
O.—15.
Tayloria Hook. 1816. Journ. Sc. Arts 2(3): 144.
*sandwicensis (C. Müll.) Broth. 1903. Nat. Pfl. 1(3): 503.
Ma.—1, 15.

THUIDIACEAE

Claopodium (Lesq. & Jam.) Ren. & Card. 1893. Rev. Bryol. 20: 16.
prionophyllum (C. Müll.) Broth. 1908. Nat. Pfl. 1(3): 1009.
Claopodium amblystegioides Dix. 1930. Proc. Linn. Soc. N. S. Wales 55: 281 *fid.* Noguchi, 1964 (of *C. nervosum*).
C. nervosum Fleisch. 1923. Musci Fl. Buitenzorg 4: 1504 *non C. n.* (Harv.) Fleisch. *err. cit.* Noguchi, 1964.
O, Mo, Ma, H.—1, 6, 12, 15.
whippleanum (Sull.) Ren. & Card. 1893. Rev. Bryol. 20: 16.
Claopodium hawaiiense Williams. 1915. Bull. Torr. Bot. Cl. 42: 576 *fid.* Noguchi, 1964.
K, O, Ma.—1, 27, 35.
Haplocladium (C. Müll.) C. Müll. 1896. Nuov. Giorn. Bot. Ital. n. ser. 3: 116.
microphyllum (Hedw.) Broth. 1907. Nat. Pfl. 1(3): 1007.
O.—15.
Haplohymenium Dozy & Molk. 1846. Musci Fr. Ined. Archip. Indici 127.
triste (Ces.) Kindb. 1899. Rev. Bryol. 26: 25.
O, Ma, H.—1, 11, 15, 34.
Thuidium B.S.G. 1852. Bryol. Eur. 5: 157.
crenulatum Mitt. 1873. *in* Seem., Fl. Vit. 402.
Thuidium nanophyllum C. Müll. 1896. Flora 82: 476 *fid.* Miller, 1967.
O, Ma, H.—1, 11.
*hawaiense Reichardt. 1877. Sitzungsb. Ak. Wiss. Wien Math. Nat.

Kl. Abt. I, 75: 579. (as "havaiense;" "hawaiiense" in Bartram, 1933)
K, O, Mo, L, Ma, H.—1, 3, 6, 8, 11, 18, 19, 21, 34, 35.
*plicatum Mitt. var. plicatum. 1873. *in* Seem., Fl. Vit. 402.
K, O, Mo, Ma, H.—1, 3, 6, 8, 18, 34, 35.
*plicatum var. brevifolium Bartr. 1933. Bishop Mus. Bull. 101: 205.
Ma, H.—1.

TIMMIACEAE

Timmia Hedw. 1801. Spec. Musc. 176.
bavarica Hessl. 1822. Timmia Musc. Fr. Gen. 19.
H.—4.

TRACHYPODACEAE

Trachypodopsis Fleisch. 1905. Hedwigia 45: 64.
auriculata (Mitt.) Fleisch. 1906. Hedwigia 45: 67.
Trachypodopsis ornans (Reichardt) Fleisch. 1906. Hedwigia 45: 68.
K, O, Mo, Ma, H.—1, 3, 6, 34, 42.
Trachypus Reinw. & Hornsch. 1829. Nov. Act. Ac. Leop. Car. 14(2): 708.
bicolor Reinw. & Hornsch. 1829. Nov. Act. Ac. Leop. Car. 14(2): 708.
Ma, H.—1, 35, 42.
This plant, rare in the Hawaiian Islands, is apparently known only from two old Baldwin collections from Maui. Recently, Dr. Derral Herbst recollected the taxon *(Hoe Acc. No. 73-1037)* from the Upper Hana Forest Reserve above Waihoi Valley, and Miss Betsy Harrison *(Hoe Acc. No. 73-1380)* collected it from the E slope of Puu Alaea.
humilis Lindb. var. humilis. 1872. Act. Soc. Sc. Fenn. 10: 230.
K.—42.
humilis var. flagellifer (Broth. *ex* Herz.) Mill. 1967. Journ. Hattori Bot. Lab. 30: 273.
Trachypus humilis var. *tenerrimus* (Herz.) Zant. 1959. Blumea IX(2): 509 *fid.* Miller, 1967.
T. mauiensis Broth. 1927. Bishop Mus. Bull. 40: 20.
K, O, Ma.—1, 3, 12, 42.

TAXA OF UNCERTAIN STATUS

For all taxa, Bartram (1933) should be consulted. In all cases, the names below are accepted by the *Index Muscorum.*

Brotherella subarcuata (C. Müll.) Broth. 1925. Nat. Pfl. ed. 2, 11: 425.
Chaetomitrium wheeleri Hampe *ex* C. Müll. 1896. Flora 82: 460.
Macromitrium altum C. Müll. 1896. Flora 82: 453. (as "alatum" in Bartram, 1933)
Microdus filicaulis Broth. 1927. Bishop Mus. Bull. 40: 5.
Mittenothamnium trichopelmatum (C. Müll.) Card. 1913. Rev. Bryol. 40: 21.
Microthamnium trichopelmatum C. Müll. 1896. Flora 82: 474 *gen. hom. illeg.*
Papillaria flaviuscula C. Müll. 1896. Flora 82: 463.
Rhynchostegium gaudichaudii (Mont.) Jaeg. 1878. Ber. S. Gall. Naturw. Ges. 1876-1877: 374 (Adumb. 2: 440).
Thyridium constrictum (Sull.) Mitt. 1868. Journ. Linn. Soc. Bot. 10: 188.

This moss, if indeed a constituent of our flora, must be either very rare or extinct locally. However, it is common throughout most of the Pacific. The type was supposedly collected from Hawaii during the United States Exploring (Wilkes) Expedition, and this locality may well be in error.

TAXA REJECTED FROM THE HAWAIIAN FLORA

1. Fissidens taxifolius Hedw. 1801. Spec. Musc. 155.

   Dr. Ronald Pursell has informed me that specimens on which this record was based *(Hoe, 1973b)* were incorrectly identified and that they represent an as yet undescribed species. The new species is presently known from numerous Kauai, Oahu, Molokai, and Maui collections and will, in all probability, be found on the island of Hawaii as well.
2. Leucobryum papuense Par. 1897. Ind. Bryol. 752.

   Van Zanten (1964) attributed this species to the Hawaiian flora in commenting on the distribution of the taxon. As his is the only recent report, and there are no specimens cited, it appears best to exclude this moss from this list.
3. Neckeropsis obtusata (Mont.) Fleisch. 1925. *in* Broth., Nat. Pfl. ed. 2, 11: 187.

   Touw (1962) in his recent monograph of the Asian and Pacific species of the genus excluded this taxon from the Hawaiian Islands. Later he confirmed (pers. comm.) that the inclusion of *N. obtusata* in the Hawaiian Islands by Bartram (1933) was based upon misidentified material of *N. lepineana* (Mont.) Fleisch.
4. Orthorrhynchium cylindricum (Lindb.) Broth. 1906. Nat. Pfl. 1(3): 835.

   Bartram (1933) stated, "I have seen no plants of this beautiful species from the Hawaiian Islands. It has been credited to the

local flora for many years by several authors, and there is no apparent reason why its geographical distribution should not extend this far. Any positive evidence will be welcome." As there are no further literature citations for the species in Hawaii, and its inclusion locally cannot be documented, it would appear best to omit it from this list for the present.

5. Pilotrichum rugifolium C. Müll. 1851. Syn. 2: 177.
   See Bartram (1933) for comments. Although the *Index Muscorum* accepts the name, it indicates a questionable presence in Hawaii.
6. Pogonatum cirratum (Sw.) Brid. 1827. Bryol. Univ. 2: 110.
   See Bartram (1933) for comments.
7. Ptychomnion aciculare (Brid.) Mitt. 1869. Journ. Linn. Soc. Bot. 12: 536.
   According to Bartram (1933), "There is no good reason why it should not occur in Hawaii. Although I have seen no specimens to substantiate the record, it has been credited to our flora in many publications." Miller (1967) and Whittier (1968) have pointed out that specimens identified as *P. aciculare* are, in fact, *Aerobryopsis scariosa* Bartr., and that this moss should be excluded from the Hawaiian flora.
8. Syrrhopodon amoenus Broth. 1900. Öfv. Finsk. Vet. Soc. Förh. 42: 94.
   The comments under *Leucobryum papuense* apply here.
9. Syrrhopodon laevigatus Mitt. 1873. *in* Seem., Fl. Vit. 389.
   See Bartram (1933) for comments.
10. Trematodon longicollis Michx. 1803. Fl. Bor. Am. 2: 289.
    A number of authors (*e.g.*, T. Shin. 1970. Mosses of the Ryukyu Islands V. *Sci. Rep. Kagoshima Univ.* 19: 51-65; H.C. Gangulee. 1971. *Mosses of Eastern India and Adjacent Regions* 2: 233) have attributed *T. longicollis* to the Hawaiian moss flora. These reports are apparently based upon misidentified Hawaiian specimens of *T. latinervis C.* Müll. See Miller (1967) for comments.
11. Vesicularia graminicolor forma fluitans Hörmann. This is a *nom. nud.*
    I am uncertain if the author intended the name to be published, although it is omitted from the recent key of the Degeners and Hörmann (1973).

REFERENCES

1. Bartram, E.B. 1933. *Manual of Hawaiian Mosses.* Honolulu: Bishop Museum Bull. 101. 275 p.
2. _____. 1939. Supplement to the *Manual of Hawaiian Mosses.* Bishop Museum Occ. Pap. 15(8): 93-108.
3. _____. 1942. Mosses collected by Hawaiian Bog Survey of 1938. Bishop Museum Occ. Pap. 16(14): 321-336.
4. _____. 1952. High altitude mosses from Mauna Kea, island of Hawaii. Bishop Museum Occ. Pap. 20(17): 297-300.
5. Bizot, M. 1969. Musci Exotici: Deuxième note. Bull. Sci. Bourgogne 26: 17-18.
6. Crosby, M.R. 1965. New records for Hawaiian Island mosses. Bryologist 68(4): 457-462.
7. _____. 1971. Recent literature on mosses—90. Bryologist 74(4): 511-522.
8. Crum, H., & D. Mueller-Dombois. 1968. Two new mosses from Hawaii. Journ. Hattori Bot. Lab. 31: 293-296.
9. Degener, O., I. Degener, & H. Hörmann. 1969. *Cyanea carlsonii* Rock and the unnatural distribution of *Sphagnum palustre* L. Phytologia 19(1): 1-4.
10. _____. 1973. Mosses of Hawaii. *Degeners' Flora Hawaiiana Leaflet No. 2:* 1-8.
11. Hatheway, W.H. 1952. Composition of certain native dry forests: Mokuleia, Oahu, T.H. Ecol. Monogr. 22(2): 153-168.
12. Hoe, W.J. 1971. Additional new and noteworthy records for Hawaiian mosses. Bryologist 74(4): 501-502.
13. _____. 1972. *Fissidens crumii* and *F. bishopii,* new species from the Hawaiian Islands. Bryologist 75(1): 84-86.
14. _____. 1973a. Notes on some Hawaiian species of the Pottiaceae. Bryologist 76(1): 192-195.
15. _____. 1973b. Additional new and noteworthy records for Hawaiian mosses—2. Bryologist 76(2): 296-298.
16. _____. 1973c. *Glossadelphus abortivapicus* and *Rhaphidostichum pustulatum,* new species of the Sematophyllaceae from Hawaii. Bryologist 76(2): 310-314.
17. _____, & H. Crum. 1971. Three new moss species from the Hawaiian Islands. Bryologist 74(4): 484-489.
18. Hörmann, H. 1964-1965. Preliminary contribution to Drs. Degener's *(sic)* survey of Hawaiian mosses. Rev. Bryol. Lichen. 33(3-4): 550-554.
19. _____. 1967. Beitrag zur Kenntnis der haüfigsten Moose der Insel Lanai. Nova Hedwigia XIV: 343-378.
20. _____. 1969. Ein neues Moos aus Hawaii: *Mniobryoides degeneriae.* Öster. Akad. Wiss., Math.-Naturwiss. Kl., Sitzungsber., Abt. I, Biol. 177: 133-139.

21. Hosaka, E.Y. 1937. Ecological and floristic studies in Kipapa Gulch, Oahu. Bishop Museum Occ. Pap. 13(17): 175-232.
22. Iwatsuki, Z., & K. Saito. 1972. Notes on *Tortula vectensis*. Misc. Bryol. Lichen. 6(4): 57-60.
23. Lawton, E. 1971. *Moss Flora of the Pacific Northwest*. Nichinan: Hattori Bot. Lab. xiii, 362 p. + 195 pl.
24. Koponen, T. 1968. Generic revision of Mniaceae Mitt. (Bryophyta). Ann. Bot. Fenn. 5: 117-151.
25. Miller, H.A. 1967. Oddments of Hawaiian bryology. Journ. Hattori Bot. Lab. 30: 271-276.
26. Noguchi, A. 1956. On some mosses of *Merceya*, with special reference to the variation and ecology. Kumamoto Journ. Sci., Ser. B, Sec. 2, 2(2): 239-257.
27. _____. 1964. A revision of the genus *Claopodium*. Journ. Hattori Bot. Lab. 27: 20-46.
28. Ochi, H. 1959. A revision of the Bryaceae in Japan and the adjacent regions. Tottori Univ. Biol. Inst., Fac. Liberal Arts Pub. 124 p.
29. _____. 1968. A revised list of mosses of the family Bryaceae in Japan and the adjacent regions. Journ. Fac. Ed. Tottori Univ., Nat. Sci. 19(1): 24-40.
30. _____. 1969. Notes on moss flora VI. Hikobia 5(3-4): 153-171.
31. _____. 1970. A revision of the subfamily Bryoideae in Australia, Tasmania, New Zealand and the adjacent islands. Journ. Fac. Ed. Tottori Univ., Nat. Sci. 21(1): 7-67.
32. _____. 1971. What is true *Bryum truncorum?* Bryologist 74(4): 503-506.
33. Sayre, G., C.E.B. Bonner & W.L. Culberson. 1964. The authorities for the epithets of mosses, hepatics, and lichens. Bryologist 67(2): 113-135.
34. Schultze-Motel, W. 1963. Beitrag zur Kenntnis der Laubmoose der Hawaii-Inseln. Willdenowia 3: 97-107.
35. Smith, D.R. 1967. New localities for Hawaiian mosses. Bryologist 70(2): 237-245.
36. Sullivant, W.S. 1859. U.S. Expl. Exp. Wilkes Musci 4.
37. Touw, A. 1962. Revision of the moss genus *Neckeropsis* (Neckeraceae). I. Asiatic and Pacific species. Blumea XI(2): 373-425.
38. _____. 1971. A taxonomic revision of the Hypnodendraceae (Musci). Blumea XIX(2): 211-354.
39. Whittier, H.O. 1968. Mosses of the Society Islands: Preliminary studies on their taxonomy, ecology, and geography. Ph.D. Thesis. Columbia University. 641 p. Univ. Microfilms. Ann Arbor, Mich. 69-9229.
40. van der Wijk, R. (Chief editor). 1959-1969. *Index Muscorum*. Utrecht: International Bureau for Plant Taxonomy and Nomenclature. 5 vols.

41. Zander, R.H. 1972. Revision of the genus *Leptodontium* (Musci) in the New World. Bryologist 75(3): 213-280.
42. van Zanten, B.O. 1959. Trachypodaceae—A critical revision. Blumea IX(2): 477-575.
43. _____. 1964. Mosses of the Star Mountains Expedition. Scientific Results of the Netherlands New Guinea Expedition 1959. Nova Guinea, Bot. 16: 263-368 + 36 pl.

NEW NAMES AND COMBINATIONS*

Bryum hawaiicum Hoe
Distichophyllum freycinetii var. crasse-turgescens (C. Müll.) Bartr. *ex* Hoe
Thamnobryum speciosum (Broth.) Hoe

NEW TO THE HAWAIIAN ISLANDS*

Sematophyllum caespitosum (Hedw.) Mitt.

NEW ISLAND RECORDS*

Kauai	Anomobryum angustirete Broth.
	Molendoa crassinervis Broth.
	Tortella humilis (Lindb.) Limpr.
Oahu	Campylopus boswellii (C. Müll.) Par. var. boswellii
	Campylopus densifolius var. hawaiico-flexuosus (C. Müll.) Mill.
	Campylopus fumarioli C. Müll.
	Dicranum speirophyllum Mont. var. speirophyllum
Molokai	Brachymenium exile (Dozy & Molk.) Bosch & Sande Lac.
	Brotherella opaeodon (Sull.) Broth.
	Calymperes tenerum C. Müll.
	Ectropothecium sandwichense (Hook. & Arnott) Mitt.
	Fissidens bishopii Hoe
	Hyophila involuta (Hook.) Jaeg.
	Syrrhopodon kilaueae C. Müll.
Maui	Barbella trichophora (Mont.) Fleisch.
	Leptobryum pyriforme (Hedw.) Wils.
	Polytrichum piliferum Hedw.
	Taxithelium mundulum (Sull.) Bartr.
Hawaii	Fabronia nietneri C. Müll.
	Fissidens baldwinii Broth.

*See text for details.

INDEX

All names of taxa in this checklist, except for minor orthographic variants, are listed; synonyms and non-Hawaiian taxa are in *italics*.